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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/812,236	03/19/2001	Michael Lange	GCSD-1128 (51163)	9436

7590 09/03/2004
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EXAMINER

SEDIGHIAN, REZA

ART UNIT	PAPER NUMBER
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2633

DATE MAILED: 09/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/812,236

Applicant(s)

LANGE ET AL.

Examiner

M. R. Sedighian

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 and 42-45 is/are pending in the application.
- 4a) Of the above claim(s) 29-41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15, 17-28 and 42-45 is/are rejected.
- 7) ☒ Claim(s) 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

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1. This communication is responsive to applicant's 6/17/2004 in the application of Lange et al. filed 3/19/2001. The amendments have been entered. Claims 1- 28 and 42-45 are now pending

2. Claim 1 is objected because the word "multiplexer" in line 20, should change to --- demultiplexer ---.

Correction is required.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2, 4, 5, 6, 7, 8, 17, 25, and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 2, it recites the limitation "said optical receiver" in line 2. There is insufficient antecedent basis for this limitation in the claim.

As to claim 4, it recites the limitation "said optical receiver" in line 2. There is insufficient antecedent basis for this limitation in the claim.

As to claim 5, it recites the limitation "said optical receiver" in line 2. There is insufficient antecedent basis for this limitation in the claim.

As to claim 6, it recites the limitation "said APD" in line 2. There is insufficient antecedent basis for this limitation in the claim.

As to claim 7, it recites the limitation "said optical transmitter" in line 2. There is insufficient antecedent basis for this limitation in the claim.

As to claim 8, it recites the limitation "said optical transmitter" in line 2. There is insufficient antecedent basis for this limitation in the claim.

As to claim 17, it recites the limitations "the transceiver" in lines 9-10 and "the optical transmitters" in line 13. There are insufficient antecedent basis for these limitations in the claim.

As to claim 25, it recites the limitation "each transmitter" in line 2. There is insufficient antecedent basis for this limitation in the claim.

As to claim 26, it recites the limitation "said attenuator" in line 3. There is insufficient antecedent basis for this limitation in the claim.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2, 5, 7, 10-12, 17, 21, 23, 25-27, 42-43, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choy et al. (US Patent No: 5,825,949) in view of Saleh (US Patent No: 6,512,614).

Regarding claims 1, 11, 17, 28, and 42, Choy teaches a multimode WDM network transceiver (12a, 14a, 20a, fig. 1), comprising: a plurality of optical transmitters (20a, fig. 1) that receive signals electrically processed (col. 2, lines 36-45, col. 4, lines 20-25 and 18a, fig. 1) at a transceiver (14a, fig. 1 and col. 9, lines 42) of a first wavelength band (col. 4, lines 42-56) and

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transmit optical communication signals along respective signal paths (22a, fig. 1) at a second wavelength band (col. 5, lines 55-61), a WDM multiplexer (24a, fig. 1) for multiplexing the optical signals of the second band (col. 4, lines 30-40), a demultiplexer (24b, fig. 1) for demultiplexing the optical signals of the second band (col. 10, lines 59-61), and a plurality of optical receivers (20b, fig. 1 and 56, fig. 3A) each connected to the demultiplexer (24b, fig. 1) and matched with each respective optical transmitter for receiving and detecting the demultiplexed signal and generating a signal to be output as an optical communication signal contained within the first wavelength band (col. 6, lines 25-36). Choy differs from the claimed invention in that Choy does not specifically disclose a channel spacing of less than 1000 GHz. Choy teaches a channel spacing of 1 nanometer (col. 5, lines 62-63). Furthermore, Saleh teaches a channel spacing of less than 1000 GHz for optical multiplexed signals (col. 4, lines 35-46). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a channel spacing of less than 1000 GHz, as it is taught by Saleh, for the channel spacing in the optical multiplex transmission system of Choy in order to provide an interference free dense wavelength optical transmission system. As to claim 17, Choy teaches a plurality of transceivers (14a, 14b, fig. 1), a plurality of optical transmitters (the optical transmitters 46 in each LRC 20a), and an optical receiver (the optical receiver 56 in each LRC 20b) that is connected to the demultiplexer (24b, fig. 1) and respective transceiver (the IOC 14b, fig. 1).

Regarding claims 2, 5, 21, and 43, Choy teaches the optical receiver comprises a PIN detector (col. 6, lines 26-30).

Regarding claims 7, 23, and 45, Choy teaches the laser is distributed feedback laser (col. 5, lines 55-60).

Regarding claims 10 and 25-26, Choy further teaches a single mode fiber for transmission of optical signals (col. 5, lines 58-59).

Regarding claims 12 and 27, Choy further teaches the second wavelength band (col. 5, line 60) is up-converted from the first wavelength band (col. 4, line 55).

7. Claims 3, 6, 18-19, 22, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choy et al. (US Patent No: 5,825,949) in view of Saleh (US Patent No: 6,512,614) and in further view of Wilsher (US Patent No: 6,496,261).

Regarding claims 3, 6, 18-19, 22, and 44, the modified optical multiplex transmission system of Choy and Saleh further differs from the claimed invention in that Choy and Saleh do not specifically teach the PIN detector comprises an InGaAS PIN detector. Wilsher teaches a plurality of InGaAS PIN detectors (650, 670, fig. 1 and col. 7, lines 25-27). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a plurality of InGaAS PIN detectors such as the ones of Wilsher for the optical receivers in the modified optical multiplex transmission system of Choy and Saleh in order to provide low noise photosensitive detectors.

8. Claims 4 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choy et al. (US Patent No: 5,825,949) in view of Saleh (US Patent No: 6,512,614) and in further view of Muoi (US Patent No: 4,415,803).

Regarding claims 4 and 20, the modified optical multiplex transmission system of Choy and Saleh further differs from the claimed invention in that Choy and Saleh do not specifically teach the optical receiver comprises a transimpedance amplifier. Muoi teaches an optical receiver (abstract and fig. 1) that comprises a detector (102, fig. 1) connected to a transimpedance amplifier (104, fig. 1). Therefore, it would have been obvious to an artisan at the time of invention to incorporate an optical receiver that comprises a transimpedance amplifier such as the one of Muoi for each of the optical receivers in the modified optical multiplex transmission system of Choy and Saleh in order to provide optical receivers with improved dynamic ranges and minimized signal distortion.

9. Claims 8 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choy et al. (US Patent No: 5,825,949) in view of Saleh (US Patent No: 6,512,614) and in further view of Clark et al. (US Patent No: 4,930,855).

Regarding claims 8 and 24, the modified optical multiplex transmission system of Choy and Saleh further differs from the claimed invention in that Choy and Saleh do not disclose the optical transmitter comprises a thermoelectric cooler and controller circuit. Clark teaches an optical transmitter (10, fig. 7) that comprises a thermoelectric cooler (68, fig. 7) and controller circuit (66, fig. 7 and col. 2, lines 35-37, col. 5, lines 7-24). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate an optical transmitter with thermoelectric cooler and controller such as the one of Clark for each of the laser modules in the modified optical multiplex system of Choy and Saleh in order to vary and adjust the temperature of each laser.

10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Choy et al. (US Patent No: 5,825,949) in view of Saleh (US Patent No: 6,512,614) and in further view of Taga et al. (US Patent No: 5,790,289).

Regarding claim 9, the modified optical multiplex transmission system of Choy and Saleh further differs from the claimed invention in that Choy and Saleh do not disclose an attenuator positioned between the optical transmitter and multiplexer. Taga teaches optical attenuators (6, 7, 8, fig. 1) between optical transmitters (1, 2, 3, fig. 1) and a multiplexer (10, fig. 1). Therefore, it would have been obvious to an artisan at the time of invention to incorporate optical attenuators along the transmission lines, as it is taught by Taga, along the transmission lines in the modified multiplex system of Choy and Saleh in order to vary the input signal level.

11. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choy et al. (US Patent No: 5,825,949) in view of Saleh (US Patent No: 6,512,614) and in further view of Allison et al. (US Patent Application Publication No: 2002/0077995).

Regarding claim 13, the modified optical multiplex transmission system of Choy and Saleh differs from the claimed invention in that Choy and Saleh do not disclose a physical sublayer chip circuit operatively connected to the plurality of optical transmitters and matched optical receivers. Allison teaches an Ethernet physical layer chip circuit (14, fig. 1) that can be interfaced with different types of media such as an optical fiber (page 1, paragraph 0022). Apparently such chip circuit that can be connected to a fiber further can be connected to an optical transmitter and receiver via the fiber. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a physical layer chip circuit

such as the one of Allison in the modified optical multiplex transmission system of Choy and Saleh in order to provide a chip circuit that includes specialized analog and digital circuits necessary to interface with different transmission media to further transmit or receive data signals.

Regarding claim 14, Allison further teaches an electrical interface (13, fig. 1) operatively connected to the physical sublayer chip circuit (14, fig. 1).

12. Claims 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Choy et al. (US Patent No: 5,825,949) in view of Saleh (US Patent No: 6,512,614) and in view of Allison et al. (US Patent Application Publication No: 2002/0077995) and in further view of Szczepanek et al. (US Patent No: 6,690,668).

Regarding claim 15, the modified optical multiplex transmission system of Choy, Saleh, and Allison further differs from the claimed invention in that Choy, Saleh, and Allison do not disclose RJ-45 jacks for Ethernet 1000 Base-T connection. Szczepanek discloses a plurality of RJ-45 jacks (28, fig. 3) for Ethernet 1000 Base-T connection (col. 5, lines 15-49). Therefore, it would have been obvious to an artisan at the time of invention to incorporate RJ-45 jacks for Ethernet connection, as it is disclosed by Szczepanek, to facilitate cable connections between various modules in the modified optical multiplex transmission system of Choy, Saleh, and Allison.

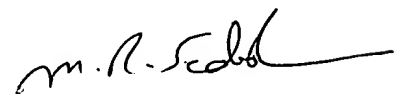
13. Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. Applicant's arguments with respect to claims 1 and 42 have been considered but are moot in view of the new ground(s) of rejection.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. R. Sedighian whose telephone number is (571) 272-3034. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


M. R. SEDIGHIAN
PRIMARY EXAMINER